Project Examples

Mirror Lake Highway, SR-150, Kamas, Utah

Functional Classification: Rural Arterial

Context: Rural Forest

Significance: The Mirror Lake Scenic Byway bisects the Wasatch-Cache National Forest. Numerous lakes and campgrounds line State Route 150 and the highway parallels the Provo River for much of the way. Scenic waterfalls and mountain vistas attract visitors from May to December. During the winter months the road is closed to vehicles and used by snowmobiles to access the Uinta Mountains of Utah.

Background: The Mirror Lake Highway began as a dirt road in the early 1900's. The CCC constructed several bridges and box culverts that crossed various rivers and streams. One such box culvert at Milepost 11 caused frequent flooding and was structurally failing. The stream that crosses through the box culvert (North Fork of the Provo River) contains the endangered spotted frog and Bonneville cutthroat trout.

Photo: UDOT

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Process: The Utah Department of Transportation owns and maintains the Mirror Lake Highway. The U.S Forest Service manages all the land on each side of the highway. It was clear that a cooperative effort would be required to accomplish the task of box culvert replacement. Several meetings were attended by representatives of UDOT, U.S. Forest Service, the U.S Army Corps of Engineers, Environmental Protection Agency, the U.S Fish and Wildlife Service, and the Utah Division of Wildlife Resources. environmental, community, and neighborhood organizations.

Project Delivery: A team of landscape architects, historians, civil engineers, and Forest Supervisors prepared design guidelines that were incorporated into the final

construction plans by UDOT. The design team created a bridge style that copied the original bridges constructed in the area by the CCC. Formliners were used to mimic the original stone pattern and wood used for parapets. Stains were hand applied to the rock and wood creating an aesthetic element to the new bridges. The bridge now handles the hydraulic events as well as increased safety and functionality for the Mirror Lake Highway.

Elements:	The project involved the replacement of two deficient box culverts and replaced them with widened bridges as well as revegetation and stream habitat restoration.
Multi-modal:	The widened roadway bridge section allows bicyclists a safer crossing over the stream. Previously the box culverts created a bottleneck forcing the bicyclists and motorists to share the entire lane. The widened roadway now has a safety shoulder with the travel lane.

Project Outcomes:

Functional	The two box culverts no longer create a "dam" of the natural waterways. The historic look of original bridges fits the natural environment without creating a maintenance problem
Social/Environmental	Motorists, bicyclists and fishermen all appreciate the improvements to the box culverts. The endangered species found in the stream have improved habitat, the fishermen have improved access and the motorists and bicyclists have improved roadway safety.
Financial/Economic	Construction began in the summer of 2000, and the project was completed in 2001 at a cost of $6 million. Mitigation, amenity, and landscape accounted for approximately 10 percent of the total project cost.
Significance:	The project established a new direction for UDOT with the use of form liners to mimic natural materials. Previously UDOT had not extensivelyused form liners or colors to fit the context of the project. This project was funded in 1996 and was "unbuildable" because of the standard design UDOT wanted to implement versus the historical significance and natural setting of the location. The compromise was found when the form liners and colors were introduced to the project and the project proceeded as a cooperative effort from that point forward.

Resources:

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